Trend Study 16B-13-02

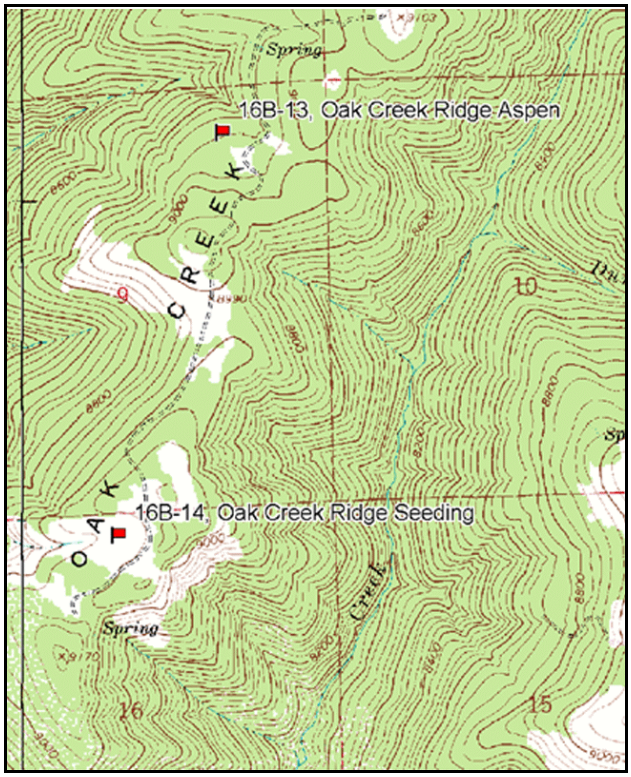
Study site name: Oak Creek Ridge Aspen . Vegetation type: Quaking Aspen .

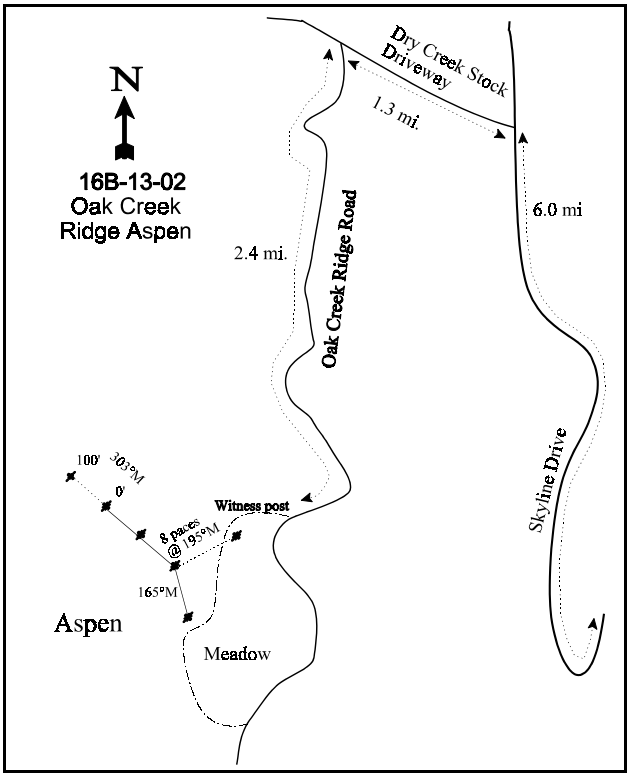
Compass bearing: frequency baseline 303 degrees magnetic (line 4 @ 165°M).

Frequency belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

From the intersection of Highways 91 and 31 in Fairview, take Highway 31 eastward 8.4 miles to Skyline Drive. Turn north on Skyline Drive and go approximately 6 miles, passing the Gooseberry Road. Turn west onto the Dry Creek Stock Driveway and go 1.3 miles to a fork. Take the left fork (south) through a fence and stay on the Oak Creek Ridge Road for 2.4 miles passing numerous side roads (staying left) until a sign is reached. The sign reads, "seeded area", and is on the west side of the road in a clearing. The witness post is back in the clearing. From this post the 0-foot baseline stake is 8 paces away at an azimuth of 195 degrees magnetic.





Map Name: Fairview Lakes

Diagrammatic Sketch

Township 13S , Range SE , Section 9

GPS: NAD 27, UTM 12S 4395472 N 468617 E

DISCUSSION

Oak Creek Ridge Aspen - Trend Study No. 16B-13

One of two studies on Oak Creek Ridge, this study samples an aspen community in an area that is thought to be important spring elk range. This Forest Service land is permitted for cattle grazing. The allotment was rested for two seasons following the meadow seeding in 1988. Pellet group frequency data in 1997 and 2002 suggest light use by elk, deer, and cattle. Pellet group transect data collected in 2002 estimated 2 days use/acre for both deer and elk (5 edu/ha and 7 edu/ha) . Cattle use was estimated at 15 days use/acre (36 cdu/ha).

The site is on a gentle slope (5-10%) with a northwest aspect and an elevation of 8,900 feet. The soil is relatively deep with few rocks within the profile. Effective rooting depth is estimated at just over 20 inches. Soil texture is a clay with a neutral pH (6.8). Organic matter is prevalent in the rich soil. A humus rich layer extends down to a depth of 4 to 6 inches, followed by a clay horizon which extends down to about 20 inches. Compaction and erosion are not a problem, although gopher activity on the site is significant. Vegetation and litter cover are abundant.

The site samples a mid-aged aspen stand with few seedling or young trees. The population consists of tall, mature trees of which most are unavailable to browsing due to their height. Point quarter data from 2002 estimated 590 trees/acre with an average diameter of 8 inches. Overhead canopy cover averages about 70%. Understory shrubs consist of elderberry and a few snowberry. Elderberry density was estimated at 1,133 plants/acre in 1989, but much less in 1997 and 2002. The change in density is due to the much larger sample used in 1997. This will help give better estimates for species that are characteristically clumped or discontinuous in their distributions. Use in 1997 was moderate to heavy, but light in 2002. Only one snowberry plant was encountered in the shrub density strips.

The dense herbaceous understory is the key component to monitor on this site. Only two species of grass, slender wheatgrass and big mountain brome, were encountered in 1989. The larger sample used in 1997 also encountered some Kentucky bluegrass. Subalpine needlegrass was picked up in the sample in 2002. Mountain brome and slender wheatgrass are the dominant species by far. Subalpine needlegrass occurs in the more open areas. Sum of nested frequency increased for grasses in 2002.

Forbs account for the majority of the vegetative cover on the site and represent the most significant vegetative component. Twenty-five species were encountered in 1997 and 2002. Common species include bedstraw, ballhead waterleaf, sweet anise, tuber starwort, American vetch, western coneflower, and slenderleaf collomia. No utilization was noticed on either grasses or forbs in 2002.

1989 APPARENT TREND ASSESSMENT

Data from this study indicate a productive, diverse, and stable community. There is no erosion and soils are stable. There is abundant herbaceous forage. Elk have been in the area all spring and summer, and there is sign of light and dispersed utilization in the aspen type. Proper livestock grazing management must be followed. Elk alone have not caused adverse impacts to the vegetative community in this area.

1997 TREND ASSESSMENT

The soil trend is stable with no erosion occurring due to abundant vegetation and litter cover. Little browse is available on this site, but trend for the most abundant understory shrub, elderberry, is stable. Trend for the aspen is stable. However, this is not a particularly healthy aspen stand. Nearly all of the trees are mature with few seedlings and young. Dead trees number 160 per/acre or one out of every 5 aspen trees. Trend for the herbaceous understory is down slightly for grasses but up for forbs. Overall trend is considered up since forbs are the key component on the site for they contribute 87% of the herbaceous understory.

TREND ASSESSMENT
soil - stable (3)
browse - stable, but limited (3)
herbaceous understory - up (5)

2002 TREND ASSESSMENT

Soil trend is stable. Erosion is minimal with the only soil disturbance coming from gopher activity. Trend for browse is stable, but remains limited. There is very little available forage from browse as nearly the entire aspen population is composed of tall trees unavailable to wildlife. Elderberry is scattered infrequently throughout the area. Trend for the herbaceous understory is down due to a 38% decline in sum of nested frequency for perennial forbs. This loss is due to the drought conditions in 2002 and should improve with better precipitation in the future.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - down (1)

HERBACEOUS TRENDS --
Herd unit 16B, Study no: 13

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'89	'97	'02	'89	'97	'02	'97	'02
G	Agropyron trachycaulum	141	137	146	58	52	59	2.03	3.86
G	Bromus marginatus	$_{b}$301	$_{a}$175	$_{a}$182	97	66	67	3.23	8.60
G	Poa pratensis	$_{a}$-	$_{b}$48	$_{b}$64	-	14	21	.67	1.89
G	Stipa columbiana	$_{a}$-	$_{a}$-	$_{b}$29	-	-	11	-	.90
Total for Annual Grasses		0	0	0	0	0	0	0	0
Total for Perennial Grasses		442	360	421	155	132	158	5.94	15.27
Total for Grasses		442	360	421	155	132	158	5.94	15.27
F	Achillea millefolium	$_{a}$-	$_{b}$33	$_{c}$47	-	13	18	1.35	2.78
F	Agoseris glauca	-	8	9	-	4	4	.04	.07
F	Aquilegia spp.	-	-	-	-	-	-	-	.03
F	Aster spp.	$_{a}$-	$_{b}$16	$_{a}$-	-	6	-	.54	-
F	Chenopodium spp. (a)	-	$_{b}$15	$_{a}$-	-	6	-	.20	-
F	Cirsium spp.	-	2	-	-	1	-	.15	-
F	Claytonia lanceolata	$_{a}$-	$_{b}$182	$_{a}$12	-	70	4	1.44	.07
F	Collomia linearis (a)	-	$_{b}$15	$_{a}$138	-	5	53	.22	2.00

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'89	'97	'02	'89	'97	'02	'97	'02
F	Cynoglossum officinale	-	-	5	-	-	3	-	.21
F	Descurainia californica	$_{b}$125	$_{a}$-	$_{a}$-	59	-	-	-	-
F	Epilobium brachycarpum (a)	-	$_{a}$-	$_{b}$40	-	-	14	-	.29
F	Erigeron eatonii	$_{a}$-	$_{a}$-	$_{b}$20	-	-	8	-	.98
F	Erigeron spp.	-	-	-	-	-	-	.00	-
F	Eriogonum racemosum	-	-	-	-	-	-	-	.00
F	Fritillaria atropurpurea	$_{a}$-	$_{b}$22	$_{a}$-	-	7	-	2.68	-
F	Frasera speciosa	-	-	5	-	-	2	-	.01
F	Galium aparine (a)	-	$_{b}$249	$_{a}$169	-	75	57	8.15	5.34
F	Hackelia patens	$_{b}$66	$_{a}$-	$_{a}$-	32	-	-	-	-
F	Hedysarum boreale	-	-	2	-	-	1	-	.03
F	Helenium hoopesii	$_{a}$9	$_{b}$39	$_{b}$46	4	17	22	1.65	3.51
F	Hydrophyllum capitatum	$_{a}$-	$_{c}$188	$_{b}$32	-	77	17	4.03	.31
F	Lappula occidentalis (a)	-	-	-	-	-	-	-	.03
F	Madia glomerata (a)	-	$_{a}$4	$_{b}$72	-	2	24	.01	.89
F	Mertensia ciliata	$_{a}$-	$_{b}$13	$_{a}$-	-	5	-	.12	-
F	Medicago sativa	2	-	-	1	-	-	-	-
F	Osmorhiza occidentalis	$_{a}$60	$_{a}$60	$_{b}$89	27	30	38	1.37	2.53
F	Phacelia spp.	-	-	4	-	-	2	-	.15
F	Polygonum douglasii (a)	-	3	-	-	2	-	.01	-
F	Rudbeckia occidentalis	$_{b}$175	$_{a}$79	$_{a}$89	73	41	44	3.59	7.43
F	Senecio serra	4	-	5	2	-	3	.00	.78
F	Stellaria jamesiana	$_{b}$242	$_{b}$243	$_{a}$170	89	78	62	7.25	5.82
F	Taraxacum officinale	$_{a}$3	$_{b}$48	$_{b}$34	2	22	15	.88	1.74
F	Thalictrum fendleri	6	1	-	3	1	-	.03	-
F	Unknown forb-annual (a)	-	11	-	-	4	-	.48	-
F	Unknown forb-perennial	$_{a}$-	$_{b}$75	$_{a}$-	-	23	-	1.80	-
F	Vaccinium caespitosum	-	3	-	-	2	-	.01	-
F	Vicia americana	$_{ab}$107	$_{a}$82	$_{b}$134	46	34	55	1.31	6.46
F	Viguiera multiflora	$_{a}$13	$_{b}$68	$_{a}$10	6	24	6	.37	.42
F	Viola spp.	$_{a}$54	$_{b}$91	$_{a}$58	28	44	28	1.10	.70
Total for Annual Forbs		0	297	419	0	94	148	9.08	8.56
Total for Perennial Forbs		866	1253	771	372	499	332	29.76	34.10
Total for Forbs		866	1550	1190	372	593	480	38.84	42.66

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --
Herd unit 16B, Study no: 13

Type	Species	Strip Frequency '97	Strip Frequency '02	Average Cover % '97	Average Cover % '02
B	Abies concolor	0	0	.00	-
B	Populus tremuloides	31	29	.21	.36
B	Sambucus racemosa	10	2	.18	.03
B	Symphoricarpos oreophilus	1	1	.15	.15
Total for Browse		42	32	0.55	0.53

CANOPY COVER --
Herd unit 16B , Study no: 13

Species	Percent Cover '97	Percent Cover '02
Populus tremuloides	72.6	71

Point-Quarter Tree Data

Trees per Acre '97	Trees per Acre '02
481	590

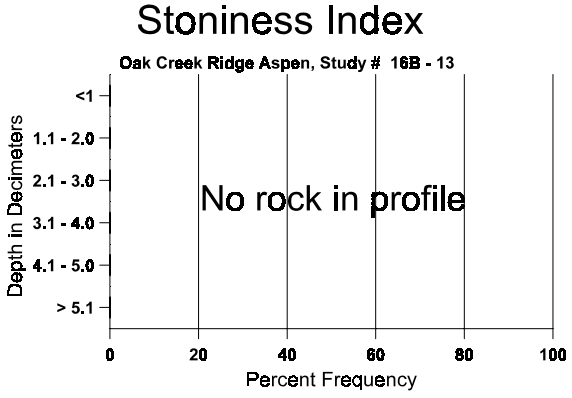
Average diameter (in) '97	Average diameter (in) '02
7.1	8.3

BASIC COVER --
Herd unit 16B, Study no: 13

Cover Type	Nested Frequency '97	Nested Frequency '02	Average Cover % '89	Average Cover % '97	Average Cover % '02
Vegetation	383	371	15.25	48.09	56.34
Rock	47	25	.25	.66	.59
Pavement	46	18	0	.10	.05
Litter	389	379	64.50	63.64	53.44
Cryptogams	2	-	0	.00	0
Bare Ground	127	159	20.00	8.44	10.53

SOIL ANALYSIS DATA --
Herd Unit 16B, Study no: 13, Oak Creek Ridge Aspen

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
20.1	38.6 (17.7)	6.8	24.0	27.8	48.2	6.7	22.3	182.4	.4



PELLET GROUP FREQUENCY --
Herd unit 16B, Study no: 13

Type	Quadrat Frequency		Pellet Transect	
			Pellet Groups per Acre	Days Use per Acre (ha)
	'97	'02	'02	'02
Rabbit	3	-	-	-
Grouse	-	1	-	-
Elk	1	1	26	2 (5)
Deer	2	-	35	3 (7)
Cattle	2	4	174	15 (36)

BROWSE CHARACTERISTICS --
Herd unit 16B, Study no: 13

AGE	YR	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches)		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4		Ht.	Cr.	
Populus tremuloides																		
S	89	-	1	-	-	-	-	-	-	-	1	-	-	-	33			1
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	89	-	-	-	-	-	-	-	4	-	4	-	-	-	133			4
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	02	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	89	-	-	-	-	-	-	-	11	-	11	-	-	-	366	393	158	11
	97	-	1	-	-	-	-	-	39	-	40	-	-	-	800	-	-	40
	02	-	-	-	-	-	-	-	32	-	32	-	-	-	640	-	-	32
X	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	160			8
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	140			7

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'89	00%	00%	00%	+38%
'97	03%	00%	00%	-18%
'02	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'89	499	Dec:	-
	'97	800		-
	'02	660		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Sambucus racemosa																		
Y	89	21	6	-	-	-	-	-	-	-	27	-	-	-	900			27
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	02	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	89	6	1	-	-	-	-	-	-	-	7	-	-	-	233	79	39	7
	97	3	5	2	-	-	-	-	-	-	10	-	-	-	200	31	14	10
	02	1	-	-	-	-	-	-	-	-	1	-	-	-	20	15	17	1
D	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	1	-	-	-	-	-	-	-	-	-	-	-	1	20			1
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
X	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'89	21%	00%	00%	-79%
'97	42%	17%	08%	-75%
'02	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'89	1133	Dec:	0%
	'97	240		8%
	'02	60		0%

Symphoricarpos oreophilus																		
Y	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	02	1	-	-	-	-	-	-	-	-	1	-	-	-	20	7	12	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'89	00%	00%	00%	
'97	00%	00%	00%	+ 0%
'02	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'89	0	Dec:	-
	'97	20		-
	'02	20		-